



THE CAROLINA DEPOT

"Good ideas and innovations are not adopted automatically. They must be driven into practice with courageous patience."

- Admiral Hyman Rickover



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“The secretary (Rumsfeld) was also keen to point out that transformation is not about the future. It is about the present as much as it is about the future. **If something is indeed a good way to think in 2015, well then why shouldn't we be thinking that way today?**”

Vice Admiral Arthur Cebrowski,
U.S Navy (Retired)
OSD Office of Force Transformation



Technology Program Overview

Bob King

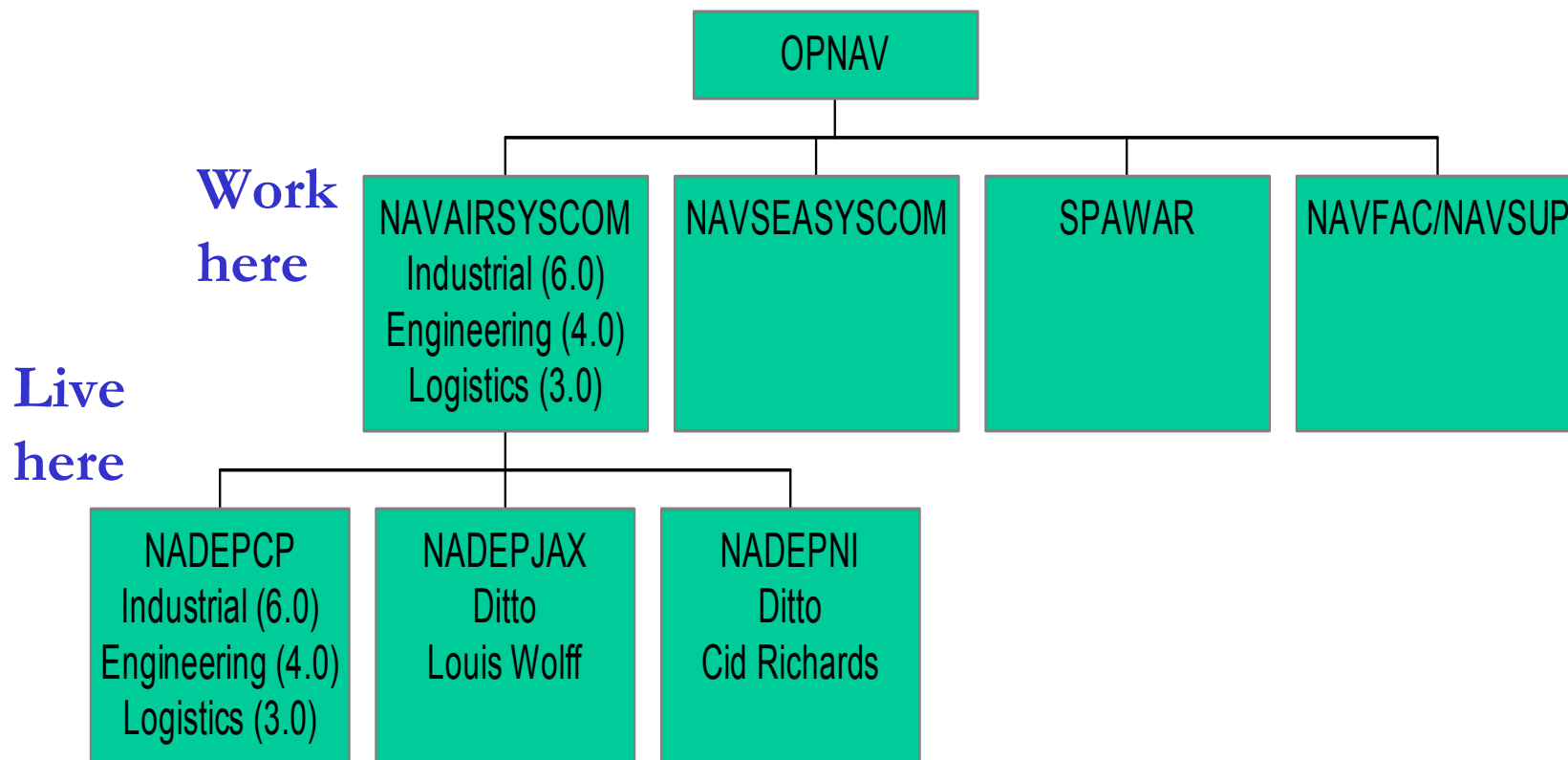
Technology

NAVAIR 6.3



Devolved Organization

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Customers – Areas of Interest



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- **Jet Engines** – 4 projects; 2 funded
- **Accessories** – 5 projects; 1 funded
- **Manufacturing** – 10 projects; 5 funded
- **Industrial** – 7 projects; 3 funded
- **Product Engineering** – 1 project; 1 funded



Engines and Transmissions Repair and Modification

Project:

- **Maintenance Mentoring System** – tech data delivery direct to artisan
- **Gear Superfinishing** – Xmissions more power, less friction
- **Enhanced Maintenance Mentoring System** – more bells and whistles than basic system

Status:

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- **NCMS funded:** - NADEP CP / P&W / USMC Barstow / L3 (formerly EER Systems)
- Rapid Response (ARL) **funded** with REM Corp NAVAIR studying overall finishing process
- **Unfunded;** Project awaiting successful MMS completion.



Components Repair and Modification (Accessories)

Project:

Status:

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- **Helicopter Blade De-painting** – reduce hand work, reduce damage, increase throughput
- **P-3 Prop Hub Low Plasticity Burnishing** – small area superfinishing to reclaim hi-cost parts
- **Reconfigurable Tooling** – labor saving **by** fast composite mold making
- **ManTech/NCMS funded.** Sikorsky/ NADEP CP/ ARL / NUWC / OOALC / WRALC / Lasertronics
- **NAVICP funding requested**
- **Unfunded;** NCMS project with 2Phase considered – no “researchy” bits.



Components Repair and Modification (Accessories)

Project:

Status:

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- **Replacement for Anodize**
 - get rid of chromic acid
- **H3 & H53D Spar Erosion** – They're expensive and can't be welded
- **Isotropically Conductive Adhesives** – replace solder with glue
- **Unfunded**; Several anti-corrosives in test (SolGels, etc). NAVSEA Code 201T (NUWC) working on torpedo shells
- **Unfunded**; Developing engineering and project requirements
- NCMS Submission; WRALC / TAD / Foster Miller / Cookson Elec / NADEP CP



Manufacturing

Project:

Status:

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■ Manufacturing

- ▣ **HI-THRU:** - improve machine programming rules
- ▣ **OPTICam:** - 3-D scan to CAD
- ▣ **UG 6 Sigma:** - Improve UG software; associate engr reqmts to parts
- ▣ **NCMS Funded:** WRALC
 - Lead on Al; NADEP CP
 - Lead on Ti
- ▣ **NCMS Funded:** OCALC / PSNSY / PHNSY / NADEP CP partners
- ▣ **NCMS Funded:** GEAE / NADEP CP / Army / OCALC / EDS / MRI / Cohesia / BCT-Tech



Manufacturing

Project:

Status:

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■ Manufacturing (cont'd)

- ▣ **Next Generation Inspection System** – inspect/grind Near Net Shape

- ▣ **LENS 2 Fabrication System** – make/repair parts with Near Net Shape welding

- ▣ **NCMS Funded:** NADEP CP / Solar / MRI / API / GT-Tech / Delta Tau

- ▣ **NCMS funded;** NADEPCP / AAD / NUWC / GEAE / Boeing / Optomec



Manufacturing

Project:

Status:

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- **Chrome Reduction Technology; Sermetel W replacement**
- **Tri-Valent Chrome** – use a safer chrome, especially for aging aircraft
- **Lead/Kirksite Die Replacement** – artisan safety issue
- **PEWG funding requested.** T400 and F402 parts.
- **Unfunded;** NCMS project in development. NADEP CP / OCALC / Sermatech / Faraday Tech
- **ManTech funding requested**



Manufacturing

Project:

Status:

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- **Powder Painting** – reduce VOC's to zero
- **Precision Paint Mixing** – reduce waste paint stream
- **Friction Stir/Plug Welding** – reman wallowed out holes
- **Unfunded**; Exploring design possibilities with CTC; experiments at NADEP JAX.
- CTC Development system (Plural Paint) at NADEP JAX.
- **Unfunded**; NCMS Submission; NADEPCP / WRALC / Cincinnati Mach / EWI / Boeing Phantom Wk



Manufacturing

Project:

- **Ribbon Welding** – Near Net Shape welds for 6-4 Titanium
- **Cold Spray** – New anti-corrosive coating

Status:

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- **Unfunded**; Tested samples; Exploring possibility with H&R Technology
- Unfunded; evaluating proposal with ARL and Ford



Industrial

Project:

Status:

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- **Sludge Reduction** – reduce cost of industrial sludge creation and disposal
- **Damage and Wear Assessment** – measure acoustic energy to predict machine failure
- RepTech **funded**; NADEPCP / ARL / CH2M Hill
- NCMS **funded**: NADEP CP / Ford / IMES Group / USMC MatCom / Army / Wayne State Univ / Cincinnati Mach



Industrial

Project:

- **Fuel Cell** – test a propane powered 5KW unit for economics
- **Solar Hot Water** – reduce energy use and cost
- **Greywater Recycling** – reduce water use and cost

Status:

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- **CERL Funded**; Army CERL / NADEP CP
- **Study - Demand Side Management Funded**; study complete; recom on new bldgs only.
- **Unfunded**; Developing business case



Industrial

Project:

Status:

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- **Thermal Depolymerization Process** – waste to energy
- **ATE Translator** – Reduce cost of ATE modernization
- **Unfunded:** NADEPCP / CTC
- **Unfunded:** NCMS submission. WPAFB / WRALC / Teredyne / NADEPCP



Product Engineering

Project:

Status:

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- **Serial Number Tracking – Part Marking**

- **NCMS funded:** NADEP CP / OOALC / AAD / RVSI partners CP equipment installed Jan 03; coupons here for test.



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The best way to predict the
future is to invent it.

- Walt Disney